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Distribution of Quota Registrants in 1987: Grade Placement, Visual Acuity, Reading Medium, School or Agency Type, and Age

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Running head: Distribution

Abstract

Each year information concerning legally blind students in the nation is reported to the American Printing House for the Blind in order to register eligible students for federal quota funds. Periodically, these data are examined to discern trends within the population and general characteristics of the pupils requiring materials and services.The distribution of quota registrants among categories defining grade placement, visual acuity, reading medium, and type of enrolling school or agency was examined for 1987. Differences in reporting categories hindered comparison of the 1987 data to data obtained in previous years, however, general comparisons were made. Figures displaying the number of registrants in various grade placements from 1963-1983 showed no increase in the number of pupils in grades 1-12, but marked increases in the numbers of registrants in categories used to report young, deaf-blind, and multihandicapped students were apparent. In 1984-87, no growth was shown in grades 1-12; growth was noted in the number of infant and preschool registrants, and fluctuation in the number of adult trainees was apparent. In analyzing the distribution of registrants in 1987, students in grades 1-12 formed 32.4% of the total number of registrants in the study. Pupils in grades 1-6 who were served in programs reporting through State Departments of Education outnumbered students enrolled in equivalent grades in residential schools approximately 9 to1; pupils in grades 7-12 outnumbered residential school students in equivalent grades by a margin of 6 to 1. A greater percentage of students reported by State Departments in grades 1-12 had acuities between 20/200 and 8/200 and were classified as visual readers; residential schools served a greater proportion of students in the lowest acuity categories and registered a higher percentage of braille readers. Infant, preschool, and kindergarten students were served by many school/agency types; as a group, they formed 18.1% of the study's total. Their acuities tended to be lower than the acuities of students in grades 1-12 . Pupils classified as other registrants (OR) comprised 37.1% of the registrants in the current study and adult trainees (AD) formed 8.1% of the total. Although the majority were served in programs reporting through State Departments, students in both categories were reported in residential schools, and multihandicapped facilities. In general, visual acuities of OR and AD pupils were lower than those of students in other grade placement categories. Almost half of all OR students were categorized as nonreaders. Adult trainees in programs reporting through State Departments were more often classifed as nonreaders or auditory readers, while rehabilitation agencies and residential schools reported proportionally fewer AD students in the lowest acuity categories and classified more AD students as braille and visual readers.

Distribution of Quota Registrants in 1987:
Grade Placement,Visual Acuity, Reading Medium,
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The American Printing House for the Blind, in connection with responsibilities established by the federal Act to Promote the Education of the Blind of 1879, conducts an annual census of the nation's legally blind students. To be included in the census, students must:

--meet the definition of legal blindness (a central visual acuity of 20/200 or less in the better eye with correcting glasses or a peripheral field so contracted that the widest diameter of such field subtends an angular distance no greater than 20 degrees)

--be enrolled in a formally organized public or private, nonprofit program of less than college level on the first Monday in January of the current year.

--have a written individual education plan or other written education plan*

Information gathered through the census is used to determine each school or agency's entitlement to federal quota funds, each receiving a proportion of the funds to be used for the procurement of books and educational materials produced by the American Printing House. The Act provides an annual appropriation to the American Printing House for the manufacture of these items, which are specially adapted for the instruction of visually handicapped pupils.

Although the primary purpose of the census (termed Federal Quota Registration) is to determine the number of eligible students enrolled in various schools and agencies in order to allocate quota funds, the census offers a rich source of information concerning the distribution and characteristics of the surveyed population. Visual acuity, grade placement, reading medium, and name of enrolling school or agency are reported for each student. Since 1985, students' dates of birth have been collected. Both birthdate and student name are used to eliminate duplicate reports from the Registration.

*[Chronologically, students may be of any age, although, according to a 1985 resolution, students who are not enrolled in grade12 or below or are over the maximum school age in the state where they reside must be enrolled in, and attend, on a regular basis, an instructional program of at least 20 hours of instruction per week. Social and leisure programs do not qualify as instructional programs.]

Each year, the American Printing House issues a brief report of the number of students served in four major types of reporting schools and agencies, showing their distribution by grade placement and reading medium. More detailed studies of the Registration data have been done at irregular intervals (Jones,1961; Bunuan, 1972; Nolan, 1964, 1967; Nolan & Bott,1971; Willis, 1978, 1979). These studies reflect the Registration figures of 1960, 1963, 1966, 1969, 1972, and 1976. The study which follows is an in-depth examination of data obtained from the 1987 Federal Quota Registration.

Unfortunately, comparison of data from earlier Registrations to data obtained in 1987 is hindered by differences in the classification of schools and agencies and by changes made to the categories used to report grade placement and reading medium. Many categories were redefined in 1984 and 1985 to eliminate overlapping of their definitions. However, broad comparisons are possible.

Over the past 24 years, the total number of registants has steadily increased each year until 1987. Table 1 reveals this pattern of steady growth in the Registration figures from 1963-83; Table 2 shows comparable data for 1984-87 using the grade placement categories introduced in 1984. A total of 17,330 pupils were registered for quota funds in 1963; in 1973 the number grew to 24,195; and in 1983 41,145 students were eligible for quota. Increments ranged from 250 to 850 students until 1973, when larger increments of 1500 to 1900 students became common. An increase of 3,168 students in 1984 was the largest increment, reflecting the registration of large numbers of adults by two agencies registering students for the first time in 1983 and 1984.

In 1987, a total of 43,145 pupils were registered, a 6% drop from the largest Registration recorded--45,930 students in 1986. This overall drop was largely accounted for by a decrease in the number of students registered in the adult trainee and postgraduate categories, particularly those enrolled by rehabilitation agencies. (See Appendix for definitions of these and other categories used to identify students' grade placements.). Table 2 indicates the number of students in grades K-12 increased slightly in 1987 and that infant and preschool categories grew, as in previous years. On the other hand, adult trainees, who numbered 5,989 in 1986, numbered only 4,280 in 1987; and the number of postgraduates dwindled from 1,376 to 91 students. Presumably this reduction was effected by the 1985 resolution, applied for the first time in 1987, which limited quota eligibility for students who were not enrolled in grade 12 or below.*

Returning to an examination of the steady growth in numbers of registrants exhibited by all but the 1987 Registration, it is interesting to note little or no change occurred in the number of pupils reported in grades K-12 over a 24-year span. Tables 1 and 2 show that the number of pupils reported in these grades fluctuated between 15,000 and 16,500. Numbers of adult trainees, on the other hand, increased from 220 in 1963 to a high of 5,989 in 1986, before dropping the following year. The number of deaf-blind students registered with the American Printing House increased dramatically from 47 to 2,089 pupils in 1983, the last year this was maintained as a separate reporting category. Growth in the number of registrants reported in the cerebral palsy category was also noted over this time period. Also apparent are large, yearly increases in the number of registrants reported in the ungraded category, a broad category which contained the following subcategories: prenursery, nursery, multihandicapped, physically handicapped, mentally retarded, slow learners, learning disorders, vocational, general educational development, and others. The size of the ungraded category grew from 1,332 pupils in 1963 to 19,321 pupils in 1983, surpassing the number of students in grades K-12 to form 47.0% of the 1983 Registration total. Table 1 indicates that the growth in total number of registrants from 1963 to 1983 was largely a function of sizable growth in the ungraded, deaf-blind, and adult trainee categories.

Table 2, which shows the Registration figures for 1984-87, features the grade placement categories in use during those years. The ungraded category was eliminated in 1984 and some of its former subcategories were given separate status: prenursery (infant); nursery (preschool); nongraded (academic nongraded); vocational. The remaining subcategories were eliminated, as were the deaf-blind and cerebral palsy categories. The other registrants (OR) category was created for school age students who did not fall within any of the new placements established that year. Students, therefore, who were not in an infant, preschool, K-12, academic nongraded, vocational, or postgraduate placement became, by default, members of the OR category.

* [Redefinition of the adult trainee category may have helped to offset this decline in size. In 1987 the definition of this category was broadened to include all adult students over school age. In keeping with this broader definition of adult trainee, all other categories were restricted in that year to preschool and school age pupils. Prior to 1987, the postgraduate and other registrants categories remained open to adults who met the criteria for these placements.]

Both logic and numbers indicate the OR category contains many students once reported in the eliminated categories. In 1983, the ungraded category was found to contain the following: multihandicapped--7,254; mentally retarded--5,866; nongraded--1,873; prenursery--1,320; nursery--1,632; learning disorders--498; physically handicapped--346; slow learners--326; vocational--143; general educational development--35; and others--28 pupils. These subcategories totaled 19,321. Subtracting from this total students in nursery, prenursery, vocational, and nongraded subcategories, which became separate categories in 1984, leaves 14,353 students. Adding to this figure students in the deaf-blind and cerebral palsy categories indicates that 16,798 students (primarily multihandicapped, mentally retarded, and deaf-blind) were in categories or subcategories which were eliminated the following year. In 1984, 15,371 registrants were reported in the newly created OR category. It is likely that some students in the eliminated categories were academic students, in which case, according to the 1984 Instructions for Registration, they were to be reported by academic grade level; however, school age, nonacademic, multihandicapped students had few, if any, alternatives to the OR placement.

There is, therefore, some correspondence between the grade placements and distribution of pupils shown in Tables 1 and 2; however, comparisons must remain guarded. Table 2, like Table 1, shows little or no growth in the number of pupils in grades K-12. Factors influencing the fluctuation of numbers in the adult trainee and postgraduate categories during the 1984-1987 period have been discussed. Infant and preschool categories, now separated from the ungraded category, showed growth throughout this period. Unlike the dramatic growth of the ungraded category displayed in Table 1, however, the OR category has shown no significant increase in size from 1984 to 1987. As mentioned, restriction of the OR category in 1987 to school age students may well have displaced some of its members to the adult trainee category. In addition, large numbers of deaf-blind students, members of the rubella epidemic of the '60's, are reaching adulthood--possibly contributing to a decline in the size of the OR category. Anaylsis of future Registration figures should offer further clues concerning recent trends within the registered population.

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Having obtained some perspective on the place of the 1987 Registration figures among data from previous years, the remainder of this study will look in detail at relationships among student characteristics and the distribution of students as revealed by the 1987 data. Tables 3-21 relate the raw numbers of this examination. Tables and subsequent discussion make use of the reporting categories used in 1987 by all schools and agencies in registering students with the American Printing House. Definitions of these categories, together with a key of reporting codes, are appended.

Some differences exist between the population upon which the following tables were calculated and the entire population of students registered in 1987. For the purposes of the study 1,918 students were deleted from the final 1987 Registration figures. These were: pupils enrolled by Hadley School for the Blind, which primarily offers adult instruction by correspondence; students reported with a visual field loss, making it difficult to categorize their visual acuity for comparison with other students; and students reported with a visual acuity of light perception or total blindness and visual reading medium, indicating an error in the use of reporting codes or in reported acuity. The current analysis is based on data of the remaining 41,227 registrants, 95.6% of the total number registered in 1987.

A single alteration was made to the data in order to clarify use of the categories which report reading medium. All students under 6 years of age (72 months) were assigned a reading medium of prereader, regardless of the reading medium reported for them. It was considered that these students, though working with braille, print, or taped materials, were not yet using these as reading media in their studies and were, therefore, working at a readiness level. Students under 6 years of age reported as nonreaders (WRONG) ? were also reclassified as prereaders. The nonreader category is reserved for students who do not fit into any other category, such as multihandicapped students who are not reading and are not working on a readiness level. Although some of the students converted to prereader may indeed have been multihandicapped students not likely to become readers, it was reasoned that the activities pursued with these pupils were similar to those performed with other young, visually handicapped students--many of which can be considered early readiness activities. They were also, therefore, classified as prereaders for the purposes of this study.

As a final preparation of the 1987 Registration data for this analysis, all students were assigned to one of nine categories based upon the reported amount of vision in the better eye. These categories ranged from I (a visual acuity of 20/200 to 18/200) to IX (total blindness). Each visual acuity category is defined in this document's appendix. Unless otherwise stated, subsequent tables and discussion reflect data modified for this study.

Table 3

Grade Placement

So very under reported!

Table 2 shows the distribution of registrants by grade placement for the 1987 Registration . Table 3 displays the number of students in each grade following deletions made for the current study. The modified figures shown in Table 3 reveal an even distribution of pupils in grades 1-12. Between 990 and 1,227 students (2.4-3.0% of the total number in the study) were reported in each of these grades. As a group, pupils in grades 1-12 composed 32.4% of the study total. Students enrolled in infant, preschool, and kindergarten programs accounted, respectively, for 6.2%, 9.0%, and 2.9% of the total. Combining the numbers of infant, preschool, and kindergarten students discloses that 18.1% of the population fell within the early childhood range. Academic nongraded (AN) students composed only 3.4% of the study population. As it is currently defined, adventitiously blind school age students may be reported in the AN category together with other students, who work on an academic level but are not assigned to a regular grade. The other registrants category, formed 37.1% of the study's total. Only one category, adult trainee (AD), was provided in 1987 for registrants over school age. Slightly more than 8% of the registrants were reported in this category. It should be noted, however, that Table 19 indicates 2,106 pupils over 22 years of age were reported as OR students rather than as adult trainees. If these pupils were placed in the AD category, 32.0% of registrants would fall within the OR category and the AD category would represent 13.2% of the study total. No checks were made of other school age categories to determine whether adults had been reported in these categories as well.

Table 4

School/Agency

A wide variety of "mainstream" schools (public, private/nonresidential, private/residential); residential schools for the blind; facilities for multihandicapped; rehabilitation agencies; private/nonprofit preschools and other private/nonprofit programs serving visually handicapped register pupils with the American Printing House. For record-keeping purposes, they are grouped by account. Table 4 shows the number of students enrolled in each of four types of "accounts." All ① residential schools for the blind form one type of account. All schools and agencies reporting through ② State Departments of Education comprise another type of account, regardless of the diversity of their program types. ③ Rehabilitation agencies who report directly to the American Printing House (rather than through their State Departments) form a third type of account, and ④ multihandicapped facilities reporting directly to the Printing House comprise the fourth account type. The diversity of mainstream schools and agencies who collectively register pupils through State Departments confuses comparisons made on the basis of of account type. Although the majority of programs included in State Department accounts are public school programs or private/ nonprofit schools, a small but undefined number of agenicies and programs who offer rehabilitation services and services to multihandicapped students are included in this group. For ease of reference, schools and agencies reporting through State Departments will be termed "day" schools in this study--since most are nonresidential schools. Table 4 indicates that 83.3% of the population in the study was receiving instruction in day schools, 10.4% in residential schools for the blind; 3.1% were reported through rehabilitation agencies, and the remaining 3.3% were reported by facilities for multihandicapped students.

Table 5

Grade Placement by School/Agency

Table 5 shows the distribution of registrants according to both grade placement and type of enrolling school/agency account. An even distribution of pupils in grades 1-12 was apparent in both day and residential schools, with day students outnumbering residential students approximately 9 to 1 in grades 1-6. Grades 7-12 contained somewhat fewer day versus residential students: averaging 6 day students for every student educated in a residential school for the blind. Table 5 also reveals that pupils in grades 1-12 made up a roughly equal percentage of the total number of registrants in each type of school: 34.2% of day students and 37.6% of residential students were in grades 1-12.

9-1
6-1
?

Infant, preschool, and kindergarten pupils made up 18.3% of the total number of students registered in day programs and 15.8%% of the total number in residential schools. The majority of students reported in infant, preschool, and kindergarten programs were enrolled in day schools, a category which includes many private/nonprofit programs in addition to those operated through the public schools. Almost 76% of all registrants in infant programs, 89.0% of pupils in preschool programs, and 85.9% of pupils in kindergarten were served in day schools; only 8.7%, 7.7%, and 14.0% respectively, were enrolled in residential school programs. It is interesting to note that 14.5% of registrants in infant programs were being served by programs which reported through rehabilitation agencies.

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Similar small percentages of day and residential students were classified as academic nongraded--3.4% and 5.3% of the total number of students registered in each of these types of schools.

Students categorized as other registrants, a large percentage of the overall population, formed almost equal percentages of the total number of students registered in day and residential schools: 37.4% of all day pupils and 36.3% of all residential students were reported in this category. Of all the students registered through multihandicapped facilities, 63.5% were categorized as other registrants. As a whole, students in the OR category primarily received instruction in day schools (83.8%). Another 10.2% of OR students were enrolled in residential schools for the blind and 5.6% in multihandicapped facilities. Less than 1% were reported by rehabilitation agencies.

Adult trainees constituted 6.0% of all registered day students and 2.9% of residential pupils. It is possible the somewhat greater proportion of adult trainees in day schools reflects students in rehabliltation programs which report through their State Department account. These adult trainees may also have been students, just past school age, who were completing their studies in a public, private or residential school for the blind. Slightly over 56% of students reported by rehabilitation agency accounts were categorized as AD, and 32.0% of the pupils in multihandicapped facilities were adult trainees. Comprising a small portion of the total Registration, most adult trainees (62.0%) were registered through day schools; another 21.2% were in rehabilitation agencies.

Table 6

Reading Medium

A primary reading medium is reported for each registrant, whether visual (regular print or large type), braille, auditory (use of a reader or auditory materials), prereader (readiness level materials of any type), or nonreader (for students who do not fit into any of these categories). Table 6 displays the number of registrants within each of the reading media categories. (For the purposes of this analysis, all students under 6 years of age were assigned membership in the prereader category; therefore the figures shown in Table 6 and other tables which display reading medium do not reflect the final figures of the 1987 Registration. It can be assumed that all registrants appearing in this study's tables as visual, braille, auditory, and nonreaders were 6 years of age or older.) Of the total number of registrants included in the study, 31.6% primarily used visual reading material, 10.8% used braille, and 12.9% used auditory material. Fully 21.7% of the registrants were classified as prereaders, a category which includes both students learning to read for the first time as well as older children and adults, blinded adventitiously, learning to read braille. The remaining 23.1% of the registrants were reported as nonreaders.

good category

Table 7

School/Agency by Reading Medium

Table 7 shows the distribution of registrants according to reading medium and type of reporting school or agency. It is interesting to note that day and residential schools served approximately equal proportions of visual readers (33.2% and 30.6%), but differed in the proportion of braille readers served. Residential schools reported 27.2% of their students used braille as their primary mode of reading; day schools categorized only 8.8% of their registrants as braille users. Day schools, on the other hand reported a somewhat higher proportion of auditory readers: 13.0% compared to 8.4% for the residential population. Day schools also served a somewhat higher proportion of prereaders (22.2%) and nonreaders (22.8%). Only 15.3% of the residential population was reported in the nonreader category. Since Table 5 indicated both types of schools served similar proportions of students in most grade placements, it is interesting to speculate concerning the reasons for this disparity in the distribution of students according to reading medium. The diversity of schools and agencies grouped as day schools hinders comparison of day and residential schools unless grade placement is also considered. Table 9, showing grade placement, reading medium, and type of reporting school/ agency, permits such comparisons.

Multihandicapped facilities registered 70.2% of their students as nonreaders, 14.6% as auditory readers; only a small percentage of students were reported as users of braille, print, or readiness materials (prereader). Of all nonreaders in the study, multihandicapped facilities served 10.0%; the majority (82.0%) were served in day schools.

The largest proportion of students registered through rehabilitation agencies were categorized as prereaders (34.6%). Table 9 shows these were predominantly students enrolled in infant programs affiliated with rehabilitation agencies, and were not, as might be supposed, adventitiously blind adults learning to read braille. Somewhat equal percentages of braille and visual readers were served by rehabilitation agencies (about 17% in each category); slightly more auditory readers were reported (22.1%). Only 8.7% were categorized as nonreaders.

Table 8

Grade Placement by Reading Medium

Table 8 shows distribution of registrants according to both grade placement and reading medium. In looking at the percentage of students in each reading medium category enrolled in grades 2-12, it is apparent their numbers remain somewhat consistent from grade to grade. Between 68.0 and 76.3% were visual readers, 17.0-22.6% used braille, 1.7-4.8% used auditory materials, and 1.9-5.0% were nonreaders. Prereaders accounted for a dwindling percentage of students in the primary grades (from 14.5% in first grade to 2.2% in third grade). Thereafter, prereaders formed approximately 1% of the total for each grade.

Infant, preschool, and kindergarten placements showed a majority of students in the prereader category, due to the assignment of students under 6 years of age to this category. Many students in these placements were originally reported by their schools as auditory readers and nonreaders.

Most academic nongraded pupils were visual readers (46.5%); 18.7% used braille, 13.9% were auditory readers, 9.8% were prereaders, and 11.0% were reported nonreaders. Although the proportion of AN braille readers is similar to the proportion of braille readers found in grades 2-12, greater percentages of auditory, prereaders, and nonreaders, and a lower percentage of visual readers, were found among this group.

Students classified as other registrants were predominantly nonreaders (49.0%); 22.5% were reported as auditory readers, 12.4% as visual readers, 11.4% as prereaders, and only 4.8% as braille users. It is assumed that many pupils in the OR category have additonal handicaps which affect their academic progress; these figures seem to support this assumption.

The adult trainee category included almost equal percentages of auditory and nonreaders (32.7% and 33.8%). Braille readers accounted for 17.5% of the students in this placement, visual readers for 14.7%, and prereaders for only 1.3%. It appears many schools and agencies were not using the prereader category to report adventitiously blind adults learning to read braille, although the category is defined to include this type of student. The high number of nonreaders is clarified in Table 9.

Table 9

School/Agency Type by Grade Placement by Reading Medium

The distribution of students according to reading medium, grade placement and type of reporting school/agency is presented in Table 9. This table provides a finer analysis of the distribution of students with various reading media in each type of school or agency by permitting simultaneous examination of students' grade placements. Table 7, for example, showed some disparity in the percentage of braille readers served by day and residential schools despite approximately equal percentages of students served in each grade placement in both types of schools (displayed in Table 5). Table 9 shows, more specifically, that this disparity chiefly existed in the percentage of braille readers in grades 1-12 and in theOR category. Over 40% of the students in residential schools in grades 1-12 were braille readers (15.1%of the total residential population). In day schools, only 16.8% of the pupils in grades 1-12 were braille users; these students represented only 5.7% of the total day population. In addition, a higher percentageof residential OR students were braille users (18.3% of all OR students). Only 3.4% of OR day students used braille (1.3% of the total day school population). Other registrants in day schools were more likely to be categorized as auditory or nonreaders.

Turning to an analysis of the distribution of auditory readers in both school types reveals that the somewhat higher percentage of auditory readers educated in day schools (see discussion of Table 8) is largely accounted for by the greater percentage of OR students reported as auditory readers in those schools. Day schools reported 3,131 OR students as auditory readers (24.4% of all OR students enrolled in day schools). Residential schools reported 234 OR students as auditory readers (15.0% of their enrollment of OR students). By contrast, the percentage of auditory readers in grades 1-12 of both day and residential schools was approximately equal: 2.8% of pupils in grades 1-12 enrolled in day schools and 2.2% of students in grades 1-12 in residential schools. There were small differences in the percentage of day school adult trainees and residential school adult trainees who used auditory media.

A brief look at the distribution of visual readers in day and residential schools shows these to be quite different--74.0% of day students in grades 1-12 were visual readers, and 53.5% of students in grades 1-12 in residential schools used a visual reading medium (20.1% of residential students) . A slightly smaller percentage of day pupils in the OR category were visual readers (12.4% of OR students in day programs versus 16.8% of the OR population served by residential schools).

Nonreaders, accounting for 22.8% of all day students and 15.3% of all residential students, were distributed differently among the grades according to type of school. The percentage of infant, preschool and kindergarten nonreaders was similar for both school types. However, nonreading students formed 3.7% of the students in grades 1-12 in day schools; this type of student formed only .3% of residential students in grades 1-12. Between 19 and 62 day students in every grade from 1-12 were reported as nonreaders. It is difficult to ascertain the type of student this group represents. As might be expected, the bulk of nonreaders in both day and residential schools were OR students, although nonreading OR pupils formed a somewhat higher percentage of day school students (47.8% of their enrollment of OR students). Nonreading pupils accounted for 39.4% of the OR pupils enrolled in residential schools. Nonreading adult trainees formed 2.6% of the day school enrollment; none were reported by residential schools.

Prereaders constituted 2.7% of students in grades 1-12 of day schools and formed 3.8% of pupils in grades 1-12 enrolled in residential schools. It is interesting to compare these figures with those calculated for nonreaders in grades 1-12. It is possible that some students, commonly classified as nonreaders by day schools, were more frequently reported as prereaders by residential programs. Of all the OR students served in both types of schools, 12.0% in day schools were reported as prereaders; 10.4% of residential school OR students were classified as prereaders.

To summarize the differences in students served by day and residential schools, Table 9 shows that a much greater percentage of the day school population in grades 1-12 were visual readers; a much larger percentage of residential students in these grades used braille. Both schools served approximately equal proportions of auditory readers in grades 1-12; they differed slightly, and in mirror image of one another, in the percentages of prereaders and nonreaders served. In terms of OR students served, day schools reported a higher percentage of nonreaders and auditory readers; residential schools reported higher proportions of their OR pupils were braille and visual readers.In addtion to serving a higher percentage of nonreaders overall, day schools also enrolled a number of nonreading adult trainees (2.5% of their total enrollment); no students of this description were served in residential schools. Again, because a range of program types are included among the schools and agencies which report through their State Departments of Education, some of the adult trainees reported in day schools may represent a population not found in residential schools, but bearing similarities to students served in rehabilitation agencies and multihandicapped facilities.

Distribution of students within the various reading medium categories who were reported by multihandicapped facilities and rehabilitation agencies is less complex. As might be expected, over half of all students enrolled in multihandicapped facilities were registered as nonreaders and were placed in the other registrants category (52.6%). Another 17.1% of their pupils were adult trainees reported as nonreaders. Slightly over 9% were registered as adult trainees using auditory media. The balance of the student population was scattered among other reading media categories. (Over 95% of all students served in multihandicapped facilities were reported as other registrants or as adult trainees.

Students reported by rehabilitation agencies and affiliated programs showed more variation. Most were adult trainees; 20.2% of their total enrollment consisted of adult trainees who used auditory materials, 17.4% were adult trainees using braille, and 16.4% were adult trainees using visual materials. Only 2.1% of their total population were adult trainees reported as prereaders or nonreaders. Prereaders in infant and preschool programs formed 33.4% of the total number of students registered through rehabilitation agencies. About 5% of the students registered were OR students; the majority of these students were nonreaders.

Table 10

Visual Acuity

Table 10 displays the distribution of students among nine categories distinguishing varying amounts of vision. Assignment to categories was based upon corrected vision in the better eye. The exact ranges of each category are stated in the appendix. In general, categories I - III indicate a moderately severe visual loss; students in these categories have vision ranging from 20/200 to 8/200; they are frequently large type readers or read regular print with the assistance of an optical aid. Categories IV - VI indicate a severe visual loss with acuities ranging from 7/200 to "counts fingers;" students will often require high-powered optical aids for reading or may use a closed circuit television. Some may require more magnification than an optical aid can supply and will utilize a CCTV or nonvisual reading medium. Category VII is reserved for students reported with the ability to perceive hand movements and for pupils having form or object perception. Category VIII includes students with light projection and/or light perception, and category IX indicates total blindness. The last three categories represent students with a profound visual loss, most of whom are unable to use a visual reading medium of any kind.

The categories used in the current study were used in previous in-depth studies of the Registration figures. Distribution of pupils among the categories in 1987 was similar to distributions shown in those studies. Turning to the data shown in Table 10, it is apparent pupils were not distributed evenly among categories. Fully 35.1% of all registrants had an acuity belonging in category I, indicating the best possible acuity (20/200-18/200). Almost 22% of all registrants in the study had no vision (category IX), and 16.6% were reported with "light projection" or "perception" (category VIII). The remaining categories contained between 8.5% and .5% of the study population. Figures from previous studies of the Registration data also show this pattern of distribution. In 1963, 34% of registered students had a category I acuity, 22% were classified in category IX, and 15% were placed in category VIII (Nolan, 1965). In 1969, 38% were placed in category I, 21% in category IX, and 12% in category VIII (Nolan, 1971). The most recent figures available, representing the 1979 Registration figures, show 39% of the population in category I, 20% in category IX, and 14% in category VIII (Willis, 1979). Although there is some fluctuation in these figures over the past 24 years, it is relatively small considering the growth in numbers of young and multihandicapped registrants, whose acuities tend to be lower than those of students in grades 1-12 (see Table 12).

Returning to Table 10, it can be seen that 78.2% of registrants had some measure of residual vision (categories I-VIII). An interesting symmetry is found through comparing students with a moderately severe visual loss (categories I-III), severe visual loss (IV-VI), and profound visual loss (VII-IX). Equal percentages of students were reported with a moderately severe loss and a profound visual loss: 46.3% and 46.8%. Only 6.9% of registrants in the study fell within the intervening categories (IV-VI).

Table 11

School/Agency by Visual Acuity

As might be anticipated from the uneven distribution of students with different reading media among schools and agencies, distribution of students among visual acuity categories also varied by type of school/agency. Table 11 shows this distribution of pupils according to type of school/agency and visual acuity. Similar percentages of day and residential pupils were placed in category IX: 20.6% of day students and 23.1% of all residential pupils were reported as totally blind. Stated in another way, 79.4% of all day students and 76.9% of residential students had some amount of residual vision. On the other hand, 37.5% of day registrants had acuities in category I, but only 25.3% of residential students were placed in this category. Grouping the figures for categories I-III shows 48.5% of day students and 38.4% of residential students were reported with acuities in the three highest categories. Grouping the three lowest categories (VII-IX) reveals 45.0% of day pupils and 51.0% of residential pupils had an acuity of "form perception" or less. Intervening categories accounted for a small percentage of the total number of registrants in each type of school: approximately 6 % of the day school population and 11% of the residential school population. Although Table 11 shows some dissimularity in the distribution of day and residential students among acuity categories, Table 13 reveals more marked differences in the acuities of day and residential pupils in grades 1-12.

Multihandicapped facilities reported a large majority of their students (72.6%) with acuities in categories VII-IX. Over 39% of pupils registered by multihandicapped facilities were reported as totally blind (IX); 23.7% fell within the three highest acuity categories, and only 3.6% were classified with acuities in the intermediate categories. Slightly more than half of the students registered through rehabilitation agencies were placed in categories VII-IX (53.5%). Over 31% of their pupils were reported as totally blind;

35.3% had reported acuities in categories I-III, and 11.1% fell within the intervening categories (IV-VI).

Table 12

Grade Placement by Visual Acuity

Table 12 reveals the distribution of registrants according to grade placement and acuity. In analyzing students in grades 1-12, the table shows roughly consistent numbers of pupils from one grade to the next within each of the given acuity categories. Grouping together all students in grades 1-12, 54.7% appear in category I, 13.5% in category III, and 9.5% in category IX. Sizes of the remaining categories range from less than 1% to 6% of the total number of registrants in grades 1-12. The great majority of students in grades 1-12 have some residual vision (90.5%). Viewing the distribution of students in grades 1-12 according to groupings of categories [I-III (moderately severe visual loss); IV-VI (severe loss); VII-IX (profound loss)] indicates 73.3% were in the three upper categories, 18.2% in the three lowest categories, and approximately 9% in intermediate categories. This distribution differs significantly from the distribution found among day and residential pupils across all grade placements shown in Table 11, which indicated 38 to 48% of all students in these schools fell within categories I-III and 45 to 51% within categories VII -IX. Sources of this difference are more apparent in Table 13. The figures in Table 12 indicate, however, that students in academic grades were more likely to have acuities in the upper categories than were pupils in other grade placements.

Although the distribution of students among acuity categories in kindergarten placements was somewhat similar to that of students in grades 1 -12, Table 12 shows that the distribution of infant and preschool registrants was very dissimilar to that of students in academic grades 1-12. A much higher percentage of infant/preschool students fell within the three lowest acuity categories (61.1%). Only 33.7% had acuities within the range of categories I-III; 5.2% were placed in categories IV-VI. Almost 23% were reported as totally blind, compared with only 9.5% of the students in grades 1-12. It is often difficult to accurately assess the vision of very young children; consequently the degree of vision may be underestimated. It is also likely that many young children with slight visual handicaps are not diagnosed and/or are not served in programs, lowering the relative number of early childhood registrants with acuities in the upper ranges. In addtion, this population is more likely to include students with multiple handicaps than is the "grade school" population. (Older students with multiple handicaps are more likely to have been separated from their peers and placed in special classes which report their students as OR.) Table 12 indicates pupils in the OR category are more likely to have an acuity in the three lowest categories. This may partially explain the greater proportion of infant and preschool students in categories VII-IX.

Turning to an analysis of acuities within the OR population reveals 64.0% of these students fell within the three lowest categories (VII-IX); 30.2% had acuities within the range of categories I-III; and less than 6% fell within the intervening categories. Almost 29% were reported as totally blind, and only 23.2% were placed in acuity category I (compared with 54.7% of "grade school" pupils). Several things may contribute to the relatively greater number of OR students with very low acuities. It is assumed that a large number of students in the OR category have additional handicaps; it is quite possible these hinder assessment of the child's vision. A number of low functioning multihandicapped children are diagnosed as "cortically blind" because they fail to respond to visual stimuli yet have no apparent ocular abnormalities. Students may appear to be totally blind, placing them in category IX. Lack of response, in many cases, is assumed to be a result of impaired brain function.

A similar majority of adult trainees (64.4%) were placed in the lowest acuity categories (VII-IX), and over 40% of AD students were reported as totally blind, the highest percentage found in any grade placement. Only 28.5% appeared in categories I-III, and category I contained only 19.4% of AD students. Table 13 permits a more detailed analysis of these and other figures.

Table 13

School/Agency by Grade Placement by Visual Acuity

Table 13 presents figures which show the distribution of students according to type of school/agency, grade placement, and visual acuity. In examining differences in the distribution of acuities among students in grades 1-12 in day and residential schools, it is apparent that day schools served a much greater percentage of pupils with acuities in the three highest categories. Almost 58% of pupils enrolled in grades 1-12 in day programs fell within the boundaries of category I, and 76.1% were in categories I-III. Only 34.4% of students in academic grades in residential programs were in category I, and barely 53% were classified in categories I-III. While 7.5% of day pupils in grades 1-12 were classified in categories IV-VI, almost 15% of residential students in equivalent grades fell within these intermediate categories. Only 16.3% of day students in grades 1-12 fell within the lowest acuity categories (VII-IX) and less than 9% were reported as totally blind; however, 32.1% of residential pupils in these grade placements were reported in the three lowest acuity categories and 14.9% were reported without sight. It is interesting to speculate concerning the reasons for this disparity in the proportion of residential students in grades 1-12 in the lowest acuity categories. Parents of students with very severe visual losses may favor residential schools, believing they are best suited to meet their child's obvious needs for braille, orientation and mobility, and other special instruction. Parents of students with moderate visual losses may find their child's need for special instruction less pressing, opting for the advantages of educating the child in local schools.

It should be remarked that the relatively greater proportion of day pupils in grades 1-12 with acuities in the highest categories (shown clearly in Table13) may serve as explanation for the greater percentage of visual readers in grades 1-12 in schools of this type and, consequently, the low percentage of braille readers in grades 1-12 remarked upon in discussion of Tables 7 and 9. Comparing the numerical difference in the percentage of braille readers in grades 1-12 in both types of schools yields a difference of 22 percentage points (40.1% versus 16.8%). Table 13 indicates residential schools differ from day schools by approximately 16 percentage points in the proportion of students in grades 1-12 in the three lowest visual acuity categories and by more than 7 percentage points in the proportion of students in intermediate categories (IV-VI). Since the proportions of auditory readers in grades 1-12 were quite small and similar in both types of schools (see Table 9), the difference in the relative numbers of braille and visual readers, at least in grades 1-12, seems to be largely a product of acuity differences in the population each type of school serves. Table 16 provides more information.

The heavier distribution of infant/ preschool and, to a lesser extent, kindergarten students in the three lowest acuity categories (see Table 12) is further exposed in Table 13. The bulk of early childhood registrants (84.0%) were reported by day schools, 9.0% were in residential schools, and 6.4% in programs which reported through rehabilitation agencies. A much larger proportion of early childhood students registered through rehabilitation agencies fell within the three lowest categories (72.7% versus 63.7% of residential students, and 54.5% of day students). Many infant and preschool students reported by rehabilitation agencies (42.8%) were classified as totally blind; only 25.6% of residential early childhood pupils and 19.5% of day pupils in early childhood placements were reported as totally blind. Information collected does not provide an explanation of this uneven distribution among programs. It is possible that regions which offer public school programs for this type of student (day programs) enroll more of the targeted population; thus the enrollment of day schools tends to be more representative of the general population of legally blind children than does the enrollment of other school/agency types. It may be that more of the early childhood pupils served through rehabilitation agencies are multihandicapped, a group which often includes children diagnosed as "cortically blind" and frequently a part of category IX. As mentioned in the discussion of Table 12, there are a variety of reasons why the overall percentage of early childhood registrants in the lowest acuity categories might be higher than that of registrants in academic grades 1-12.

In analyzing the distribution of students reported as other registrants, the high proportion of students in the three lowest acuity categories (VII-IX) is evident once again. Rehabilitation agencies reported 77.0% of this group in categories VII-IX; multihandicapped facilities classified 75.5% of their OR students in these categories; residential and day schools reported similar percentages of OR students in categories VII-IX: 67.5% and 62.7% respectively. Fully 52.3% of OR students in rehabilitation agencies were reported with no vision. This figure was much lower for other school/agency types, ranging from 27.8 to 30.9%. Day schools had the greatest percentage of OR students in categories I-III (31.6%). Residential schools had the next highest figure: 24.6%. It is interesting to recall that Table 9 indicated a much greater proportion of OR students in residential schools used braille and visual reading media, while OR students in day schools were more likely to be categorized as auditory or nonreaders. According to Table 13, these differences do not appear to be the result of differences in the acuities of OR pupils in these two school types. Similar percentages of OR students are reported by both types of schools in the lowest acuity categories, and day programs actually have a greater percentage of OR students with acuities in the upper ranges (categories I-III), although they have relatively fewer visual readers. Comparison of the figures in Tables 9 and 13 seem to suggest differences in the reading media of the OR populations in day and residential schools were due to factors other than acuity, such as type and extent of additional handicapping conditions. It must be remembered that diverse agencies may contribute to the day school population of OR students.

Finally, adult trainees were served by every type of school/agency which reported students. Although the majority (62.0%) were reported through day school programs (some of which may have been rehabilitation programs), 21.2% were reported through rehabilitation agencies, 13.0% by multihandicapped facilities, and less than 4% by residential schools. Adult trainees in day schools had the highest proportion of pupils in categories VII-IX (73.6%). Almost 47% of AD students in day schools were reported as totally blind, and less than 22% appeared in categories I-III. Multihandicapped facilities had the next largest percentage of AD students in the three lowest categories (VII-IX). Over 67% of AD pupils in these facilities were so classified; 46.2% had no vision; 28.6% fell within the three upper categories. Residential schools, serving only a fraction of the population, had almost equal percentages of AD students in the three lowest and highest categories (about 49% and 42% respectively). Slightly more than 38% of AD students in rehabilitation agencies were reported in the three lowest categories (VII-IX); only 22.1% were reported with no vision; 45.2% had acuities in the upper three categories.

Table 14

Visual Acuity by Reading Medium

Table 14 records the interaction of visual acuity and reading medium, a subject of speculation in the discussion of preceding tables. Of particular interest is the presence of a possible "breaking point," the approximate acuity at which greater numbers of students are reported with a nonvisual (versus visual) reading medium. In order to observe this more clearly, the discussion which follows uses figures calculated upon the total number of visual, braille, and auditory readers only. (Prereaders, since they may be using any medium, and nonreaders were removed to better answer the question posed.)

In categories I-III, between 91.0% and 81.2% of registrants were visual readers, 3.1 - 7.7% read braille, and 5.1% - 11.1% used an auditory medium. Pupils in category IV showed the first sizable shift in the distribution of reading medium: only 67.5% continued to read visually; 19.7% read braille, and 12.7% read auditorially. An even greater shift occured among students in category V, where 47.7% were reported as visual readers, 39.4% as braille readers, and 12.9% as auditory readers. For the first time, nonvisual readers (braille and auditory combined) outnumbered visual readers. In category VI, the trend was reversed: more visual readers were reported (54.3%), fewer braille readers (28.7%), and slightly more auditory readers (17.0%). There is a possible explanation for this unexpected reversal. Category VI is reserved for students with an reported acuity of "counts fingers." In Understanding Low Vision , Jose (1983) remarks that an assessment of "counts fingers" should rarely be given, since it is possible to obtain a Snellen acuity for the majority of these patients (p. 149). It is possible students reported in this category should have been reported in other categories indicating a higher acuity, thus the unexpected increase in the percentage of visual readers in category VI. The distribution of readers in category VII ("hand movements," "object" or "form" perception) resumes the trend toward nonvisual reading media: only 20.4% used a visual medium, 27.4% read braille, and a much greater percentage (52.2%) used auditory media. (It is interesting to speculate what type of visual reading medium is being used by students with such a severe visual loss; a closed circuit television can magnify a visual image many times, but at high levels of magnification provides a working field which is small and makes their use cumbersome.) In preparing the Registration data for the present study, all students reported with a visual reading medium and an acuity in category VIII or IX were eliminated from the analysis, visual reading being impossible for students with light projection or less. Category VIII, following the deletion of these pupils, showed 45.3% with a braille reading medium and 54.7% with an auditory reading medium. In category IX, 52.9% were classified as braille readers and 47.1% were categorized as auditory readers.

The breaking point, in terms of visual versus nonvisual reading media, was not clear-cut and subject to wide individual variance. However, the shift to nonvisual means of reading was most apparent among students in categories IV and V if the questionable data in category VI are set aside. Data shown in this table appear to uphold the usefulness of analyzing acuities by grouping categories I-III as likely visual readers, categories IV-VI as transitional categories, and VII-IX as representing braille users.

Restoring prereaders and nonreaders to the analysis of Table 13, figures show that 35.9% of prereaders fell into categories I-III, most of these in category I. Only 6.7% were reported with acuities in categories IV-VI. The majority (57.4%) were in the lowest categories, with 21.3% in category IX. These figures agree with those shown in other tables which indicate a high percentage of students with very low acuities in grade placements in which prereaders predominated: infant and preschool placements.

A large majority of nonreaders (72.1%) fell within the three lowest acuity categories, and 33.8% were reported as totally blind. Only 23.7% were in categories I-III. These figures correspond well with others indicating a high percentage of students with profound visual losses in the OR grade placement.

Table 15

Grade Placement by Reading Medium by Visual Acuity

Table 15, like Table 9, shows the interaction of three variables: grade placement, reading medium, and acuity. Looking at the distribution of readers of various media within grades 1-12, it is clear the pattern is quite similar from one grade to the next. Large numbers of visual readers are seen in categories I -III; most braille readers appear in the lowest acuity categories. Although relatively few auditory readers were reported, a surprising number had acuities in category I. The largest numbers of nonreaders in academic grades were in grades 1-3 and had acuities in category I. Possibly these were prereaders misclassified as nonreaders.(Category I, as revealed in Table 12, contained more than 50% of the enrollment of each grade, more than any other category.)

According to Table 15, a large number of kindergarten students are prereaders with acuities in category I. A number of visual readers were also reported in category I, which contains 42.6% of all kindergarteners. As remarked in discussion of Table 13, infant and preschool students were more likely to have acuities in the three lowest categories. Table 15 shows this distribution once again. Because all students under 6 years of age were automatically assigned to the prereader category for the purposes of this analysis, it may be assumed that students appearing in other reading media categories were beyond this age.

Other registrants, shown on the last page of Table 15, are distributed among reading media and acuity categories in an interesting manner. Almost 49% of all OR students were reported as nonreaders. Of OR students with acuities in categories VII-IX, fully 55.3% were nonreaders. However, only 37.8% of students in categories I-III were classified as nonreaders; 34.0% read visually; about 16% used auditory media. Looking back at OR students in the lowest acuity categories, 26.1% used auditory media, and only 6.1% used braille. Similar percentages of prereaders appeared in both low acuity and high acuity groups. Very diverse reasons for the greater proportion of nonreaders and auditory readers in categories VII-IX may be proposed. The lowest functioning multihandicapped students are often diagnosed as "cortically blind," and fall within acuity category IX, thereby adding to the numbers of nonreaders in category IX. In addition, the braille code has been considered more difficult to learn than print, and tactual discrimination of braille letters a more difficult task than discrimination of print letters. Nolan and Kederis (1969) show findings which suggest "...braille reading appears to be a more intellectually demanding task than print reading" (p.143). OR students with a very low acuity have the option of attempting to learn a more difficult medium or of using an auditory medium. It does not seem surprising that more choose to use an auditory medium. All of these and other factors may have a bearing on the distribution of readers in the other registrants placement.

Adult trainees, a very diverse group which includes individuals served by rehabilitation agencies, multihandicapped facilities, and day schools, exhibited a distribution of nonreaders similar to that of the OR population. In the three lowest acuity categories, 44.4% were classified as nonreaders, 20.6% read braille, and 32.8% used an auditory medium; very few prereaders and visual readers were recorded. In the three highest acuity categories, only 15.7% were nonreaders, 41.5% read visually, 33.1% read auditorially, and 8.5% used braille. Many AD students may have additional handicaps, although this is not possible to determine from the data given. Adult trainee is the only placement provided for students beyond normal school age, and it is reasonable to assume the presence of a significant number of multihandicapped individuals in this group; approximately 13% of AD students are actually served in multihandicapped facilities. Reasons for the heavier distribution of nonreaders with extemely low acuities, therefore, may be similar to those suggested for this distribution among OR students. It is also possible that those responsible for reporting adventitiously blind adults, who were learning to read braille for the first time, chose to classify these pupils as nonreaders, rather than reporting them in the prereader category. Only 1.3% of all AD students were reported as prereaders.

Table 16

School/Agency by Reading Medium by Visual Acuity

The relationship of type of school/agency, reading medium, and acuity is depicted in Table 16. Analyzing pupils in day and residential schools discloses that the distribution of students in acuity categories I-III among the various reading media was somewhat similar for schools of both types. The percentages for day and residential students in categories I-III were, respectively: 62.2 and 66.7% visual readers; 2.4 and 7.0% braille readers; 6.4 and 4.9% auditory readers;14.7 and 15.3% prereaders; and 12.0 and 6.1% nonreaders. Corresponding figures for pupils in the three lowest acuity categories show differences existed between the two types of schools. For day and residential schools, respectively, Table 16 shows: 1.1 and 1.3% visual readers; 15.0 and 41.1% braille; 20.8 and 11.3% auditory; 27.6 and 22.6% prereaders; and 35.5 and 23.8% nonreaders. Table 13 indicated that much of the difference in the percentage of braille readers served in day and residential schools in grades 1-12 was due to acuity differences; in grades 1-12, residential schools enrolled a greater proportion of pupils with extremely low acuities and day schools a greater proportion of students with high acuities. This did not appear to be the case for the OR population, which contained similar proportions of individuals in both school types with low and high acuities. Table 9 revealed the only major difference in the OR day school and OR residential school populations: greater percentages of OR auditory and nonreaders in day schools and a higher percentage of OR braille readers in residential schools. Since the present table does not indicate grade placement, these crucial differences are not evident, but their effects are seen in Table 16's figures, which reveal a great difference in the percentage of braille readers with very low acuities in day and residential schools. Based on the analyses of Tables 9 and 13, the sources of this difference are several; it cannot be assumed that day schools were less inclined to teach braille or that residential schools had, across all grade placements, more students in the lowest acuity categories.

Table 16 displays the predominance of nonreaders with low acuities in multihandicapped facilities, Nonreading students with acuities in the three lowest categories formed 58.1% of these facilities total population.

Table 16 also reveals the relatively large numbers of students in rehabilitation agencies with acuities in categories VII-IX. Although prereaders in categories VII-IX form the single largest group in the enrollment of these agencies (25.0%), Table 9 shows these were not adventitiously blinded adults learning to read braille, but were predominantly pupils registered in infant programs. The next largest groups within rehabilitation agencies were visual readers in the lowest three highest categories (13.7% of their population) and braille readers in the three lowest categories (13.3% of the population reported by rehabilitation agencies).

Table 17

Average Age: School/Agency

Table 17 discloses the average age, in months, of students in each type of school/ agency. Despite the variety of schools and agencies grouped together as day schools, day and residential schools served students of similar average age: 13 years, 7 months and 14 years, respectively. This average age is consistent with data which show that the bulk of the enrollment of both school types consisted of students in school age grade placements. The average age of pupils in mulitihandicapped facilities (26 years, 7 months) reflected the greater number of adults served. Most surprising was the average age of pupils served through rehabilitation agencies: 24 years. Although it might be expected that such agencies would serve many older adults with degenerative eye conditons, Table 5 revealed almost 38% of students enrolled through these agencies were reported in infant/ preschool placements. These much younger pupils significantly reduce the average age of registrants served by rehabilitation agencies.

Table 18

Average Age: Grade Placement

The average age of pupils within each grade placement is disclosed in Table 18. The average age of students in grades 1-12 was only slightly greater than might be expected for students without visual impairment. In January of 1987, the average age of registrants reported in first grade was 7 years, 6 months; second grade--8 years, 7 months; third grade--9 years, 8 months. The average age increased by 11-14 months with each grade, with the exception of grade 12, which jumped 17 months in average age. It is possible students not yet ready for graduation or taking an extra year to learn special skills were retained in grade 12. Average ages for registrants in infant, preschool, and kindergarten programs closely resembled expected ages for these placements. The average age of pupils in the OR category was 15 years, 7 months; more information concerning the age of OR students is displayed in Table 19, which reveals the presence of adult students reported in the OR category. Pupils in the adult trainee placement averaged 36 years, 11 months of age. The AD placement is intended to include all registrants beyond normal school age. The postgraduate placement, however, showed an average age of 38 years, 10 months, indicating many of the students registered in this placement were well over school age. According to the 1987 Registration instructions (see appendix) this is a misapplication of the reporting codes.

Table 19

OR Students by Age by School/Agency

Table 19 reveals, in greater detail, the distribution of OR pupils according to age and type of school/agency. It is apparent that a number of students reported in the OR placement were not of normal school age (up to 21 - 22 years in most states). The OR category is intended for school age students. Removing these 2,106 "over age" pupils and placing them in the appropriate category (AD) would cause the average age of OR students to drop and would modify OR figures throughout this analysis. If these students were reassigned, OR pupils would form 32.0% of the total Registration, not the 37.1% indicated in Table 4. Very young OR students (birth to 6 years) formed 3.2% of all registrants; however, it is likely similar students were reported in infant/preschool placements, making it difficult to estimate the actual number of multihandicapped students in the early childhood range. OR pupils aged 6 to 22 years composed 28.9% of all registrants in 1987.

It is interesting to note that day schools enrolled the great majority (96.4%) of OR students from 0 to 4 years of age. Schools and agencies classified as day schools also continued to serve large numbers of OR students beyond normal school age. Multihandicapped facilities, as well, reported a number of older OR students; Table 5 indicated these facilities also reported many AD students. It is likely that there is no distinction between these two groups, merely a difference in the application of codes in reporting multihandicapped students over the normal school age. If this is the case, older multihandicapped students may have composed approximately 6% or more of all registrants in 1987.

Table 20

Average Age: Reading Medium

The average age of students reported in each reading medium category is displayed in Table 20. Prereaders averaged 4 years, 9 months of age. Over 4,800 students were reclassified as prereaders for the purposes of the present study, placing all students under 6 years of age in the prereader category. The prereader category was not used to report adventitously blind adults, keeping the average age of this category quite low. Visual readers averaged 14 years, 2 months of age. This is not surprising considering the relatively high numbers of visual readers represented in grades 1-12 (see Tables 7 and 8). The average age of braille readers was slightly higher: 17 years. A much larger percentage of braille readers were reported as adult trainees (13.1%). Only 3.7% of all visual readers were reported in the AD placement. This serves as a partial, if not complete, explanation of the higher average age of braille readers. In addition, as mentioned in the discussion of Table 15, the braille code has been considered more difficult to learn than print. Students may learn to read braille at a slightly later age, influencing the average age of braille readers. Nonreaders showed the next highest average age, averaging 18 years and 3 months. Almost 12% of all nonreaders were reported as adult trainees and 78.2% were OR students (shown in Table 8). Both of these groups had relatively higher average ages than students in academic grades. Auditory readers demonstrated the highest average age (22 years, 3 months). Reasons for this are similar to those cited for the greater average age of nonreaders: 20.6% were adult trainees and 65.1% were reported as other registrants.

Table 21

Average Age: Visual Acuity

The last of the study's tables, Table 21, indicates the average age of students in each visual acuity category. With the exception of category IX, the average ages of all acuity categories were similar. They ranged between 13 years and 14 years, 9 months, reflecting the fact that the great majority of registrants are preschool and school aged students. Category IX contained students whose ages averaged 17 years. More AD and OR students were reported in the lowest acuity categories than appeared in other acuity categories. Table 12 showed almost 64% of students in category IX were reported as adult trainees or other registrants. Since pupils in these placements tend to be older than the bulk of the school age population, it is not surprising that their presence increased the average age of category IX.

Summary

Much information is provided in each year's Registration data concerning indivdual students who share some, but not other, common features. In analyzing and summarizing the data, general statements and conclusions should be made cautiously, for the legally blind population and the range of programs serving visually handicapped pupils are diverse. The 1987 data points to the presence of several subpopulations. Summarizing information about these groups separately, recognizing that many students do not fit neatly into these or other groups, seems an appropriate way to make general comparisons yet respect this diversity.

School age, academic pupils in grades 1-12 constitute one subgroup found within the population of registrants; their numbers have changed little over the past 24 years. They have come to represent a smaller percentage of the population as the numbers of multihandicapped, early childhood and adult registrants have increased. In 1987, they formed 32.4% of the total number of registrants in this study and were served almost exclusively in residential schools for the blind and "day" schools, which reported through State Departments of Education. Approximately 34 to 38% of the enrollments of day and residential schools were composed of students in these grade placements. Day students outnumbered residential students 9 to 1 in grades 1-6 ; grades 7-12 contained somewhat fewer day versus residential students. Day school students in grades 1-12 tended to have higher visual acuities than their peers in residential schools. Seventy- six percent had visual acuities ranging from 20/200 to 8/200. At the other end of the visual acuity range, only 16.3% had an acuity of "hand movements" or less; less than 9% were totally blind. Almost 15% of residential students were reported as having no vision; and 32.1% had an acuity of "hand movements" or less. Approximately 53% had a visual acuity between 20/200 and 8/200. Not unexpectedly, residential pupils in grades 1-12 were more likely to be braille readers--over 40% used braille as their primary mode of reading and 53.5% read visually. Only 16.8% of day students in grades 1-12 used braille as their primary mode of reading and 74.0% read visually. A small proportion (2 to 3%) of day and residential pupils in these grades used auditory media. Very few nonreaders were reported in these grades by residential schools, although day schools reported 3.7% of their grade school population in this category. It is possible these students were adventitiously blinded and had not yet acquired a reading medium. Some students of this description may also have been reported to the American Printing House as prereaders. The average age of students in each grade was slightly greater than might be expected for a sighted population. The averge age of first graders (in January of 1987) was 7 years, 6 months. The average age for each grade increased by about 11-14 months with each increase in grade level. The only exception was for students in 12th grade, whose average age was 19 years, 0 months--17 months older than the average age for 11th graders.

A growing number of registrants in recent years have been reported in infant, preschool, and kindergarten programs. This population is significant for many reasons, as it is the focus of new federal legislation extending services to young handicapped children, and represents future registrants, many of whom have received services from birth. In the current study, 18.1% of all registrants were reported in an infant, preschool, or kindergarten grade placement. A very wide range of agencies and schools offer programs for early childhood visually handicapped students. The majority (84.0%) were reported through day school accounts. [For this age group, this may include public school kindergartens, private/nonprofit agencies which provide homebound services to infants and preschoolers, private/nonprofit centerbased preschools (some mainstream, others serving only handicapped children), programs operating through hospitals, and others.] Approximately 9% of the registrants in early childhood placements were reported through residential schools for the blind, 6.4% by rehabilitation agencies, and less than 1% by multihandicapped facilities. Rehabilitation agencies, however, did register a significant number of students in infant programs--over 14% of all students reported in that placement. And, although residential schools reported only a small percentage of the infant/preschool population,14.0% of all kindergarteners were enrolled in residential schools. On the whole, pupils in infant and preschool placements, and to a lesser extent, students in kindergarten, had lower visual acuities than students placed in grades 1-12. Almost 23% were reported with no vision, only 33.7% had visual acuities between 20/200 and 8/200. The majority (61.1%) had acuities ranging from "hand movements" to total blindness. (A much larger percentage of early childhood students registered through rehabilitation agencies fell within this low acuity range--72.7% versus 63.7% of residential students, and 54.5% of day students. In addition, almost 43% of the infant and preschool students reported by rehabilitation agencies were classified as totally blind; only 25.6% of residential early childhood pupils and 19.5% of day pupils in early childhood placements were reported as totally blind.) Due to reassignment of students under 6 years of age to the prereader category, less than 12% were distributed in other reading media categories. (Before assigning students to the prereader category, 39.0% were reported as prereaders, 35.4% as auditory, and 15.9% as nonreaders.) The average age of pupils in infant programs was 2 years, 6 months. Preschoolers averaged 4 years, 5 months of age, and the average age of students placed in kindergarten was 6 years, 5 months.

Students of school age who were not placed in grades 1-12 or in infant, preschool, kindergarten, academic nongraded, vocational, or postgraduate placements, were to be reported in the "other registrant" category. This category is presumed to contain many nonacademic, multihandicapped registrants. Pupils reported in the OR category comprised 37.1% of all registrants in the study. An analysis of the ages of students reported in the OR category, however, showed many to be over school age. If all pupils over 22 years of age were removed and categorized with other adult students in the adult trainee category, only 32.0% of all registrants in the present study would fall within the OR placement. Students in this category were served by all four types of accounts registering students with the American Printing House, although the majority (83.8%), as with other grade placements, were served by schools and agencies reporting through their State Departments of Education (day schools). Approximately 10% of OR pupils were reported in residential schools for the blind, 5.6% in multihandicapped facilities, and less than 1% in rehabilitation agenicies. An examination of students' ages and school/agency types showed 1,305 OR students were 6 years of age or younger; of these, 93.5% were reported by day school accounts. Students between 6 and 22 years of age numbered 11,898, and were largely served in day schools (83.7%). OR students formed approximately equal proportions of the total enrollment of day and residential schools--about 37%. In analyzing the visual acuities of OR students, acuities tended to be much lower than the acuities of pupils in grades 1-12 and in infant, preschool, and kindergarten placements . Rehabilitation agencies reported 77.0% of their OR students had acuities which ranged from "hand movements" to total blindness; multihandicapped facilities classified 75.5% of their OR students in this range; residential and day schools reported similar percentages of OR students with these acuities: 67.5% and 62.7% respectively. (Fully 52.3% of OR students in rehabilitation agencies were reported with no vision. This figure was much lower for other school/agency types, ranging from 27.8% to 30.9%.) Most OR students were classified as nonreaders: 82.9% of OR pupils in multihandicapped facilities, 63.1% registered through rehabilitation agencies, 47.7% in day schools, and 39.4% in residential schools. Day schools reported 24.4% of their other registrants used auditory media,12.4% read visually, 12.0% were prereaders; only 3.4% were braille users. In residential schools, the next largest groups of readers among the OR population were braille readers (18.3%) and visual readers (16.8%). The average age of all pupils in the other registrants category was calculated to be 15 years, 7 months. If, however, all students over school age were removed form the OR category the average age would be expected to drop.

In 1987, adult trainees formed 8.1% of the total number of registrants in the study and 9.9% of the number in that year's final Registration figures. The previous year, they had comprised 13.0% of the Registration total. Presumably, this reduction in both number and percentage of total was the result of a new resolution stipulating that students above 12th grade must be enrolled in and attend, on a regular basis, an instuctional program of at least 20 hours per week. A broadening of the definition of adult trainee may have helped to offset this decline. Beginning with the 1987 Registration, all pupils over school age were to be reported in the adult trainee category. Many adults, however, continued to be reported in the OR category; 2,106 over the age of 22 years were counted. Had these students been reported as adult trainees, the AD category would have formed 13.2% of the study total. Other grade placement categories were not checked for the presence of adult students, therefore it is possible that students over school age represented an even greater percentage of all registrants. The majority of adult trainees (62.0%) were registered through day school accounts. Rehabilitation agencies reporting directly to the American Printing House registered 21.2% of all adult trainees; multihandicapped facilties reported 13.0% of the pupils in this placement, and residential schools served about 4% of this population. Like pupils in the OR placement, many adult trainees were reported with extremely low visual acuities. Adult trainees in day school programs had the greatest percentage of pupils with vision ranging from "hand movements" to total blindness (73.6%); almost 47% of adult trainees in day schools had no vision. Over 67% of the AD students in multihandicapped facilities had vision in this very low range and 46.2% were reported totally blind. It is interesting that only 38.5% of AD pupils reported by rehabilitation agencies fell within the lowest acuity range and 22.1% were classified as totally blind. AD students reported by rehabilitation agencies were almost evenly divided among visual reading media (29.2%), braille (31.0%), and auditory (36.0%). Only 2.5% were nonreaders and less than 2% were prereaders. Multihandicapped facilities classified 53.3% of their adult trainees as nonreaders, 28.4% as auditory readers, 11.3% as visual readers, 5.1% as braille users, and less than 2% as prereaders. Day school programs, enrolling the greatest number of adult trainees, more closely resembled multihandicapped facilities in the types of readers served: 42.5% nonreaders, 32.6% auditory readers, 14.2% braille readers, 9.5% visual readers, and less than 2% prereaders. Residential schools served only 126 AD students, who were distributed among reading media categories much as adult trainees reported by rehabilitation agencies. The average age of all adult trainees was 36 years, 11 months.

Somewhat apart from discussion of the characteristics of subpopulations within the 1987 Registration, the relationship of visual acuity to reading medium was examined in the present study. As the degree of residual vision decreased, the tendency to utilize a nonvisual reading medium increased. The breaking point, in terms of visual versus nonvisual reading media, was not clear-cut and subject to wide individual variance. However, the shift to nonvisual means of reading was most apparent among students with acuities from 7/200 to .4/200 (categories IV and V). Among students with acuities of 20/200 to 8/200 (categories I-III), 91.0 - 81.2% of registrants were visual readers, 3.1 - 7.7% read braille, and 5.1% - 11.1% used an auditory medium. Pupils in category IV showed the first sizable shift in reading medium: only 67.5% continued to read visually; 19.7% read braille, and 12.7% read auditorially. An even greater shift occurred among students in category V, where 47.7% were reported as visual readers, 39.4% as braille readers, and 12.9% as auditory readers. For the first time, nonvisual readers (braille and auditory combined) outnumbered visual readers. In category VI, the trend was reversed: more visual readers were reported (54.3%), fewer braille readers (28.7%), and slightly more auditory readers (17.0%). (The acuity specified for this category--"counts fingers"-- has questionable meaning; it is possible students reported in this category should have been reported in other categories indicating a higher acuity.) The distribution of readers in category VII ("hand movements," "forms" and "object perception") resumed the trend toward nonvisual reading media: only 20.4% used a visual medium, 27.4% read braille, and a much greater percentage (52.2%) used auditory media. Category VIII ("light projection and/or perception") showed 45.3% with a braille reading medium and 54.7% with an auditory reading medium. In category IX (total blindness), 52.9% were classified as braille readers and 47.1% were categorized as auditory readers. (Visual readers reported in categories VIII and IX were removed from the study, since their reports were considered to be in error.)

Much more information concerning the distribution of registrants in 1987 and relationships between acuity, reading media, grade placement, type of enrolling school/ agency, and student age can be found in the table-by-table discussion in this study and gleaned from firsthand analysis of the tables. It is anticipated that the definitions of grade placement and reading media categories used in the 1987 and 1988 Registrations will remain stable, permitting detailed comparisons of data obtained in future Registrations to the present study. This will enable an examination of the Registration data for trends which may offer information about what lies ahead, in addition to information about the current group of registrants.

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Table 1

Distribution of Registrants by Grade Placement, 1963-1983

	Grade placement						
Year	K-12	Adult trainee	Postgraduate	Deaf-blind	Cerebral Palsy	Ungraded[1]	TOTAL
1963	15707	220	18	47	4	1332	17330[2]
1964	16292	241	6	67	1	1485	18093[3]
1965	16390	211	12	51	3	1960	18627[4]
1966	16658	296	19	50	1	2243	19291
1967	16798	240	10	63	3	2461	19575
1968	16527	355	29	97	97	3181	20266
1969	16243	390	17	176	122	3564	20512
1970	16398	460	18	216	135	3996	21223
1971	16137	544	14	363	155	4633	21846
1972	15928	657	30	536	141	5410	22702
1973	15900	862	47	732	147	6507	24195
1974	15535	1232	40	1067	129	7806	25809
1975	16031	1844	57	1168	169	8051	27320
1976	16153	2037	65	1234	183	9323	28995
1977	16160	2456	48	1398	206	10319	30587
1978	16056	2977	85	1631	238	11478	32465
1979	15822	1900	65	1735	258	13281	33061
1980	15633	2251	90	1898	259	14688	34814
1981	15552	2347	130	2013	314	16041	36397
1982	15140	3160	150	2054	359	17386	38249
1983	14880	3632	867	2089	356	19321	41145

[1] The ungraded category included the following subcategories: prenursery, nursery, vocational, general educational development, nongraded, physically handicapped, mentally retarded, slow learners, learning disorders, multihandicapped, and other. A separate count of these subcategories was made in 1983 but was not routinely performed.

[2] Total reflects the addition of one student for whom no grade was reported and one vocational student.

[3] Total reflects the addition of one student for whom no grade was reported.

[4] Total reflects the addition of 24 students for whom no grade was reported.

Table 2

Distribution of Registrants by Grade Placement, 1984-1987

Grade placement

Year	K-12	Adult trainee	Postgrad-uate	Voca-tional	Academic nongraded	Infant	Preschool	Other registrants	TOTAL
1984	16229	5948	281	487	1736	1807	2455	15371	44313
1985	15337	5967	1211	472	1320	2209	2755	15950	45221
1986	14925	5989	1376	382	1445	2519	2993	16301	45930
1987[1]	15210[2]	4280[3]	91[2]	260	1460	2581[2]	3731[2]	15532[2]	43145

[1] Effective in 1987, a resolution passed in 1985 limited registration of students above 12th grade to those who were enrolled in and attending, on a regular basis, an instructional program of at least 20 hours of instruction per week. Social and leisure programs were not considered instructional programs.

[2] Beginning in 1987, it was specified that pupils registered in these categories must be of preschool or.school age. Definitions for the academic nongraded and vocational categories had specified students must be of school age since their inception in 1984.

[3] Definition of this category was altered in 1987. Previously it had been defined as "adults in educational programs through a rehabilitation agency" or "adults through a rehabilitation agency." It was broadened to include all "adults above school age in educational programs of less than college level." In 1987 it was the only category provided for students over school age.

Table 3

Grade Placement

Grade placement	Number of students
Infant	2572
Preschool	3703
Kindergarten	1191
Grade 1	1164
Grade 2	1227
Grade 3	1134
Grade 4	1094
Grade 5	1122
Grade 6	1076
Grade 7	1105
Grade 8	1114
Grade 9	1158
Grade 10	1123
Grade 11	1061
Grade 12	990
Academic nongraded	1414
Post graduate	87
Vocational training program	252
Adult trainee	3331
Other registrant	15309
TOTAL	41227

Table 4

School or Agency

School or agency	Number of students
Day school programs	34331
Residential school programs	4285
Rehabilitation agencies	1259
Multihandicapped facilities	1352
TOTAL	41227

Table 5
Grade Placement x School /Agency

Grade placement	Day school programs	Residential school programs	Rehabilitation agencies	Multihandicapped facilities	Total
Infant	1952	224	372	24	2572
Preschool	3294	284	107	18	3703
Kindergarten	1023	167	0	1	1191
Grade 1	1043	121	0	0	1164
Grade 2	1109	118	0	0	1227
Grade 3	1026	108	0	0	1134
Grade 4	967	123	0	4	1094
Grade 5	1014	108	0	0	1122
Grade 6	982	94	0	0	1076
Grade 7	967	138	0	0	1105
Grade 8	960	152	0	2	1114
Grade 9	977	180	0	1	1158
Grade 10	961	162	0	0	1123
Grade 11	900	160	0	1	1061
Grade 12	840	149	0	1	990
Academic nongraded	1174	226	5	9	1414
Postgraduate	82	4	1	0	87
Vocational	164	85	3	0	252
Adult trainee	2066	126	706	433	3331
Other registrant	12830	1556	65	858	15309
TOTAL	34331	4285	1259	1352	41227

Table 6

Reading Medium

Reading medium	Number of students
Visual	13018
Braille	4450
Auditory	5300
Prereader	8931
Nonreader	9528
TOTAL	41227

Table 7

School/Agency x Reading Medium

	Reading medium					
School/agency	Visual	Braille	Aud.	Pre.	Non.	Total
Day school programs	11391	3025	4466	7636	7813	34331
Residential school programs	1313	1167	358	791	656	4285
Rehabilitation agencies	212	223	278	436	110	1259
Multihandicapped facilities	102	35	198	68	949	1352
TOTAL	13018	4450	5300	8931	9528	41227

Table 8

Grade Placement x Reading Medium

Grade placement	Visual	Braille	Aud.	Pre.	Non.	Total
	Reading medium					
Infant	2	1	3	2541	25	2572
Preschool	57	33	67	3369	177	3703
Kindergarten	238	132	41	705	75	1191
Grade 1	690	206	37	169	62	1164
Grade 2	847	209	32	78	61	1227
Grade 3	826	210	21	25	52	1134
Grade 4	811	211	19	16	37	1094
Grade 5	811	232	37	11	31	1122
Grade 6	821	204	18	12	21	1076
Grade 7	836	202	22	14	31	1105
Grade 8	838	226	19	6	25	1114
Grade 9	854	227	31	15	31	1158
Grade 10	814	235	37	15	22	1123
Grade 11	739	240	51	11	20	1061
Grade 12	673	221	43	12	41	990
Academic nongraded	658	265	197	139	155	1414
Post graduate	37	32	18	0	0	87
Vocational training program	86	45	68	12	41	252
Adult trainee	489	583	1090	42	1127	3331
Other registrant	1891	736	3449	1749	7494	15309
TOTAL	13018	4450	5300	8931	9528	41227

Table 9

School/Agency x Grade Placement x Reading Medium

School/agency			Reading medium			
Grade	Visual	Braille	Aud.	Pre.	Non.	Total
Day school programs						
Infant	2	0	3	1932	15	1952
Preschool	54	21	47	3058	114	3294
Kindergarten	216	87	29	625	66	1023
Grade 1	634	158	34	155	62	1043
Grade 2	783	170	30	66	60	1109
Grade 3	767	165	19	24	51	1026
Grade 4	745	154	19	12	37	967
Grade 5	759	183	31	10	31	1014
Grade 6	773	161	16	11	21	982
Grade 7	763	142	20	11	31	967
Grade 8	746	167	18	5	24	960
Grade 9	750	160	29	8	30	977
Grade 10	726	173	33	7	22	961
Grade 11	649	178	46	8	19	900
Grade 12	595	163	36	5	41	840
Academic nongraded	558	163	176	126	151	1174
Post graduate	35	29	18	0	0	82
Vocational training program	53	19	58	3	31	164
Adult trainee	196	294	673	25	878	2066
Other registrant	1587	438	3131	1545	6129	12830
Subtotal	11391	3025	4466	7636	7813	34331
Residential school programs						
Infant	0	0	0	223	1	224
Preschool	2	12	8	247	15	284
Kindergarten	22	45	12	80	8	167
Grade 1	56	48	3	14	0	121
Grade 2	64	39	2	12	1	118
Grade 3	59	45	2	1	1	108
Grade 4	62	57	0	4	0	123
Grade 5	52	49	6	1	0	108
Grade 6	48	43	2	1	0	94
Grade 7	73	60	2	3	0	138
Grade 8	90	59	1	1	1	152
Grade 9	104	66	2	7	1	180
Grade 10	88	62	4	8	0	162
Grade 11	89	62	5	3	1	160
Grade 12	77	58	7	7	0	149
Academic nongraded	92	101	19	10	4	226
Post graduate	2	2	0	0	0	4
Vocational training program	3	26	9	7	10	85
Adult trainee	38	48	40	0	0	126
Other registrant	262	285	234	162	613	1556
Subtotal	1313	1167	358	791	656	4285

Table 9 (continued)
School/Agency x Grade Placement x Reading Medium

School/agency Grade	Reading medium					
	Visual	Braille	Aud.	Pre.	Non.	Total
Rehabilitation agencies						
Infant	0	0	0	364	8	372
Preschool	1	0	6	57	43	107
Kindergarten	0	0	0	0	0	0
Grade 1	0	0	0	0	0	0
Grade 2	0	0	0	0	0	0
Grade 3	0	0	0	0	0	0
Grade 4	0	0	0	0	0	0
Grade 5	0	0	0	0	0	0
Grade 6	0	0	0	0	0	0
Grade 7	0	0	0	0	0	0
Grade 8	0	0	0	0	0	0
Grade 9	0	0	0	0	0	0
Grade 10	0	0	0	0	0	0
Grade 11	0	0	0	0	0	0
Grade 12	0	0	0	0	0	0
Academic nongraded	1	1	1	2	0	5
Post graduate	0	1	0	0	0	1
Vocational training program	0	0	1	2	0	3
Adult trainee	206	219	254	9	18	706
Other registrant	4	2	16	2	41	65
Subtotal	212	223	278	436	110	1259
Multihandicapped facilities						
Infant	0	1	0	22	1	24
Preschool	0	0	6	7	5	18
Kindergarten	0	0	0	0	1	1
Grade 1	0	0	0	0	0	0
Grade 2	0	0	0	0	0	0
Grade 3	0	0	0	0	0	0
Grade 4	4	0	0	0	0	4
Grade 5	0	0	0	0	0	0
Grade 6	0	0	0	0	0	0
Grade 7	0	0	0	0	0	0
Grade 8	2	0	0	0	0	2
Grade 9	0	1	0	0	0	1
Grade 10	0	0	0	0	0	0
Grade 11	1	0	0	0	0	1
Grade 12	1	0	0	0	0	1
Academic nongraded	7	0	1	1	0	9
Post graduate	0	0	0	0	0	0
Vocational training program	0	0	0	0	0	0
Adult trainee	49	22	123	8	231	433
Other registrant	38	11	68	30	711	858
Subtotal	102	35	198	68	949	1352
TOTAL	13018	4450	5300	8931	9528	41227

Table 10

Visual Acuity

Visual acuity	Number of students
I	14475
II	1105
III	3489
IV	1040
V	201
VI	1622
VII	3480
VIII	6834
IX	8981
TOTAL	41227

Table 11

School/Agency x Visual Acuity

	Visual acuity									
School/agency	I	II	III	IV	V	VI	VII	VIII	IX	Total
Day school programs	12858	881	2919	803	143	1272	2902	5494	7059	34331
Residential school programs	1083	136	426	188	44	223	301	894	990	4285
Rehabilitation agencies	317	34	94	37	7	96	92	184	398	1259
Multihandicapped facilities	217	54	50	12	7	31	185	262	534	1352
TOTAL	14475	1105	3489	1040	201	1622	3480	6834	8981	41227

Table 12

Grade Placement x Visual Acuity

	Visual acuity									
Grade	I	II	III	IV	V	VI	VII	VIII	IX	Total
Infant	655	12	46	23	4	85	379	752	616	2572
Preschool	1157	30	215	96	13	103	428	850	811	3703
Kindergarten	507	37	129	46	5	67	68	145	187	1191
Grade 1	585	43	172	44	7	66	39	101	107	1164
Grade 2	670	52	176	48	11	74	29	70	97	1227
Grade 3	631	52	159	44	5	54	36	67	86	1134
Grade 4	594	55	161	34	4	52	26	67	101	1094
Grade 5	620	60	144	36	9	47	23	74	109	1122
Grade 6	635	57	139	27	5	32	22	62	97	1076
Grade 7	626	59	160	39	10	30	18	66	97	1105
Grade 8	603	73	147	43	9	47	20	55	117	1114
Grade 9	644	60	142	47	5	47	33	58	122	1158
Grade 10	646	64	126	29	6	37	23	73	119	1123
Grade 11	568	64	137	36	6	41	22	73	114	1061
Grade 12	496	48	136	35	7	53	24	89	102	990
Academic nongraded	544	54	154	56	11	57	89	192	257	1414
Post graduate	29	8	7	4	1	2	2	9	25	87
Vocational training	72	10	30	7	1	19	16	33	64	252
Adult trainee	646	73	229	70	21	146	317	481	1348	3331
Other registrant	3547	194	880	276	61	563	1866	3517	4405	15309
TOTAL	14475	1105	3489	1040	201	1622	3480	6834	8981	41227

Table 13

School/Agency x Grade Placement x Visual Acuity

School/agency					Visual acuity					
Grade	I	II	III	IV	V	VI	VII	VIII	IX	Total
Day school programs										
Infant	514	10	43	21	4	67	322	580	391	1952
Preschool	1057	27	199	92	12	94	396	725	692	3294
Kindergarten	462	35	118	42	2	51	62	112	139	1023
Grade 1	541	42	152	39	7	58	34	77	93	1043
Grade 2	623	49	156	40	8	63	24	56	90	1109
Grade 3	595	49	147	33	5	42	30	56	69	1026
Grade 4	554	52	143	27	4	36	21	46	84	967
Grade 5	589	54	129	29	7	41	21	57	87	1014
Grade 6	600	52	127	22	5	27	18	46	85	982
Grade 7	578	51	143	29	8	24	17	48	69	967
Grade 8	549	63	127	35	6	33	15	43	89	960
Grade 9	583	47	121	35	3	39	22	35	92	977
Grade 10	584	54	106	19	2	30	17	57	92	961
Grade 11	512	51	113	27	4	27	17	54	95	900
Grade 12	449	40	115	28	5	39	16	65	83	840
Academic nongraded	482	44	120	31	9	50	76	156	206	1174
Post graduate	27	7	7	4	1	1	2	9	24	82
Vocational training	44	4	18	5	1	8	12	27	45	164
Adult trainee	309	27	116	26	9	59	216	340	964	2066
Other registrant	3206	123	719	219	41	483	1564	2905	3570	12830
Subtotal	12858	881	2919	803	143	1272	2902	5494	7059	34331
Residential school programs										
Infant	60	2	2	2	0	3	17	90	48	224
Preschool	70	3	14	3	1	5	22	89	77	284
Kindergarten	45	2	11	4	3	15	6	33	48	167
Grade 1	44	1	20	5	0	8	5	24	14	121
Grade 2	47	3	20	8	3	11	5	14	7	118
Grade 3	36	3	12	11	0	12	6	11	17	108
Grade 4	36	3	18	7	0	16	5	21	17	123
Grade 5	31	6	15	7	2	6	2	17	22	108
Grade 6	35	5	12	5	0	5	4	16	12	94
Grade 7	48	8	17	10	2	6	1	18	28	138
Grade 8	53	9	20	8	3	14	5	12	28	152
Grade 9	61	13	21	12	2	8	11	22	30	180
Grade 10	62	10	20	10	4	7	6	16	27	162
Grade 11	55	13	24	9	2	14	5	19	19	160
Grade 12	47	8	21	7	2	13	8	24	19	149
Academic nongraded	56	10	33	24	1	7	12	35	48	226
Post graduate	1	1	0	0	0	1	0	0	1	4
Vocational training	26	5	12	2	0	11	4	6	19	85
Adult trainee	33	6	14	3	2	6	15	19	28	126
Other registrant	237	25	120	51	17	55	162	408	481	1556
Subtotal	1083	136	426	188	44	223	301	894	990	4285

Table 13
School/Agency x Grade Placement x Visual Acuity (continued)

School/agency					Visual acuity					
Grade	I	II	III	IV	V	VI	VII	VIII	IX	Total
Rehabilitation agencies										
Infant	81	0	1	0	0	15	34	74	167	372
Preschool	28	0	2	1	0	3	6	29	38	107
Kindergarten	0	0	0	0	0	0	0	0	0	0
Grade 1	0	0	0	0	0	0	0	0	0	0
Grade 2	0	0	0	0	0	0	0	0	0	0
Grade 3	0	0	0	0	0	0	0	0	0	0
Grade 4	0	0	0	0	0	0	0	0	0	0
Grade 5	0	0	0	0	0	0	0	0	0	0
Grade 6	0	0	0	0	0	0	0	0	0	0
Grade 7	0	0	0	0	0	0	0	0	0	0
Grade 8	0	0	0	0	0	0	0	0	0	0
Grade 9	0	0	0	0	0	0	0	0	0	0
Grade 10	0	0	0	0	0	0	0	0	0	0
Grade 11	0	0	0	0	0	0	0	0	0	0
Grade 12	0	0	0	0	0	0	0	0	0	0
Academic nongraded	0	0	1	0	0	0	1	0	3	5
Post graduate	1	0	0	0	0	0	0	0	0	1
Vocational training	2	1	0	0	0	0	0	0	0	3
Adult trainee	202	31	86	34	7	74	45	71	156	706
Other registrant	3	2	4	2	0	4	6	10	34	65
Subtotal	317	34	94	37	7	96	92	184	398	1259
Multihandicapped facilities										
Infant	0	0	0	0	0	0	6	8	10	24
Preschool	2	0	0	0	0	1	4	7	4	18
Kindergarten	0	0	0	0	0	1	0	0	0	1
Grade 1	0	0	0	0	0	0	0	0	0	0
Grade 2	0	0	0	0	0	0	0	0	0	0
Grade 3	0	0	0	0	0	0	0	0	0	0
Grade 4	4	0	0	0	0	0	0	0	0	4
Grade 5	0	0	0	0	0	0	0	0	0	0
Grade 6	0	0	0	0	0	0	0	0	0	0
Grade 7	0	0	0	0	0	0	0	0	0	0
Grade 8	1	1	0	0	0	0	0	0	0	2
Grade 9	0	0	0	0	0	0	0	1	0	1
Grade 10	0	0	0	0	0	0	0	0	0	0
Grade 11	1	0	0	0	0	0	0	0	0	1
Grade 12	0	0	0	0	0	1	0	0	0	1
Academic nongraded	6	0	0	1	1	0	0	1	0	9
Post graduate	0	0	0	0	0	0	0	0	0	0
Vocational training	0	0	0	0	0	0	0	0	0	0
Adult trainee	102	9	13	7	3	7	41	51	200	433
Other registrant	101	44	37	4	3	21	134	194	320	858
Subtotal	217	54	50	12	7	31	185	262	534	1352
TOTAL	14475	1105	3489	1040	201	1622	3480	6834	8981	41227

Table 14

Visual Acuity x Reading Medium

	Reading medium					
Visual acuity	Visual	Braille	Aud.	Pre.	Non.	Total
I	8764	312	1012	2636	1751	14475
II	837	36	47	91	94	1105
III	2109	201	287	478	414	3489
IV	493	144	93	205	105	1040
V	74	61	20	25	21	201
VI	528	279	166	372	277	1622
VII	213	287	546	1077	1357	3480
VIII	0	1085	1311	2145	2293	6834
IX	0	2045	1818	1902	3216	8981
TOTAL	13018	4450	5300	8931	9528	41227

Table 15
Grade Placement x Reading Medium x Visual Acuity

Grade placement Reading medium	Visual acuity I	II	III	IV	V	VI	VII	VIII	IX	Total
Infant										
Visual	1	0	0	0	0	1	0	0	0	2
Braille	0	0	0	0	0	0	0	0	1	1
Auditory	1	0	0	0	0	0	0	1	1	3
Prereader	643	12	46	23	4	83	375	745	610	2541
Nonreader	10	0	0	0	0	1	4	6	4	25
Subtotal	655	12	46	23	4	85	379	752	616	2572
Preschool										
Visual	44	2	2	4	1	2	2	0	0	57
Braille	1	0	1	0	0	0	2	12	17	33
Auditory	9	1	2	2	0	1	8	25	19	67
Prereader	1051	26	207	89	11	98	402	765	720	3369
Nonreader	52	1	3	1	1	2	14	48	55	177
Subtotal	1157	30	215	96	13	103	428	850	811	3703
Kindergarten										
Visual	151	11	40	11	3	17	5	0	0	238
Braille	4	1	3	2	1	6	9	44	62	132
Auditory	12	0	1	3	0	3	2	7	13	41
Prereader	318	24	78	29	1	37	43	80	95	705
Nonreader	22	1	7	1	0	4	9	14	17	75
Subtotal	507	37	129	46	5	67	68	145	187	1191
Grade 1										
Visual	446	39	122	29	5	39	10	0	0	690
Braille	20	0	10	4	2	15	15	60	80	206
Auditory	12	0	6	1	0	0	4	8	6	37
Prereader	81	3	28	9	0	10	5	18	15	169
Nonreader	26	1	6	1	0	2	5	15	6	62
Subtotal	585	43	172	44	7	66	39	101	107	1164
Grade 2										
Visual	577	41	145	33	5	41	5	0	0	847
Braille	18	2	9	9	5	23	18	49	76	209
Auditory	13	1	5	1	0	3	0	3	6	32
Prereader	38	4	11	4	1	6	1	6	7	78
Nonreader	24	4	6	1	0	1	5	12	8	61
Subtotal	670	52	176	48	11	74	29	70	97	1227
Grade 3										
Visual	554	51	144	32	2	31	12	0	0	826
Braille	19	1	8	10	3	16	14	57	82	210
Auditory	10	0	1	2	0	0	3	4	1	21
Prereader	17	0	2	0	0	3	1	1	1	25
Nonreader	31	0	4	0	0	4	6	5	2	52
Subtotal	631	52	159	44	5	54	36	67	86	1134

Table 15 (continued)

Grade Placement x Reading Medium x Visual Acuity (continued)

Grade placement	Visual acuity									
Reading medium	I	II	III	IV	V	VI	VII	VIII	IX	Total
Grade 4										
Visual	552	52	143	22	2	32	8	0	0	811
Braille	13	1	10	9	2	18	13	53	92	211
Auditory	6	0	1	2	0	1	1	6	2	19
Prereader	8	1	3	1	0	1	0	1	1	16
Nonreader	15	1	4	0	0	0	4	7	6	37
Subtotal	594	55	161	34	4	52	26	67	101	1094
Grade 5										
Visual	562	56	130	25	4	30	4	0	0	811
Braille	34	1	7	11	2	14	14	59	90	232
Auditory	11	1	5	0	2	0	1	7	10	37
Prereader	7	0	1	0	0	2	0	0	1	11
Nonreader	6	2	1	0	1	1	4	8	8	31
Subtotal	620	60	144	36	9	47	23	74	109	1122
Grade 6										
Visual	597	56	120	17	2	23	6	0	0	821
Braille	13	0	13	9	3	8	13	56	89	204
Auditory	10	1	2	0	0	1	1	1	2	18
Prereader	7	0	2	1	0	0	0	1	1	12
Nonreader	8	0	2	0	0	0	2	4	5	21
Subtotal	635	57	139	27	5	32	22	62	97	1076
Grade 7										
Visual	593	51	144	27	8	13	0	0	0	836
Braille	10	4	9	9	12	14	7	57	90	202
Auditory	5	2	2	1	0	3	4	1	4	22
Prereader	6	1	1	2	0	0	1	2	1	14
Nonreader	12	1	4	0	0	0	6	6	2	31
Subtotal	626	59	160	39	10	30	18	66	97	1105
Grade 8										
Visual	579	69	127	30	5	23	5	0	0	838
Braille	8	3	16	9	3	20	11	48	108	226
Auditory	5	0	3	4	0	1	2	3	1	19
Prereader	4	0	0	0	0	0	0	1	1	6
Nonreader	7	1	1	0	1	3	2	3	7	25
Subtotal	603	73	147	43	9	47	20	55	117	1114
Grade 9										
Visual	601	57	125	31	1	31	8	0	0	854
Braille	16	0	10	12	4	12	20	50	103	227
Auditory	11	0	3	2	0	3	2	4	6	31
Prereader	7	1	2	1	0	0	0	1	3	15
Nonreader	9	2	2	1	0	1	3	3	10	31
Subtotal	644	60	142	47	5	47	33	58	122	1158

Table 15 (continued)
Grade Placement x Reading Medium x Visual Acuity (continued)

Grade placement Reading medium	Visual acuity									
	I	II	III	IV	V	VI	VII	VIII	IX	Total
Grade 10										
Visual	599	62	112	13	1	23	4	0	0	814
Braille	17	1	9	9	5	12	13	62	107	235
Auditory	14	1	5	2	0	2	1	7	5	37
Prereader	8	0	0	3	0	0	2	1	1	15
Nonreader	8	0	0	2	0	0	3	3	6	22
Subtotal	646	64	126	29	6	37	23	73	119	1123
Grade 11										
Visual	515	59	112	29	3	18	3	0	0	739
Braille	18	2	11	6	2	19	14	63	105	240
Auditory	19	2	10	0	1	3	4	8	4	51
Prereader	7	1	1	0	0	0	0	0	2	11
Nonreader	9	0	3	1	0	1	1	2	3	20
Subtotal	568	64	137	36	6	41	22	73	114	1061
Grade 12										
Visual	461	45	115	25	1	23	3	0	0	673
Braille	8	1	10	8	5	17	16	75	81	221
Auditory	11	0	6	2	0	10	2	4	8	43
Prereader	5	1	2	0	0	1	0	2	1	12
Nonreader	11	1	3	0	1	2	3	8	12	41
Subtotal	496	48	136	35	7	53	24	89	102	990
Academic nongraded										
Visual	417	47	112	32	8	29	13	0	0	658
Braille	13	3	12	11	1	13	19	73	120	265
Auditory	32	0	11	9	0	5	16	66	58	197
Prereader	50	1	14	3	1	9	14	22	25	139
Nonreader	32	3	5	1	1	1	27	31	54	155
Subtotal	544	54	154	56	11	57	89	192	257	1414
Post graduate										
Visual	24	5	5	2	0	1	0	0	0	37
Braille	2	1	2	1	0	0	0	7	19	32
Auditory	3	2	0	1	1	1	2	2	6	18
Prereader	0	0	0	0	0	0	0	0	0	0
Nonreader	0	0	0	0	0	0	0	0	0	0
Subtotal	29	8	7	4	1	2	2	9	25	87
Vocational training										
Visual	52	3	19	2	1	8	1	0	0	86
Braille	1	2	2	1	0	3	2	8	26	45
Auditory	9	2	3	1	0	3	10	14	26	68
Prereader	3	2	1	0	0	2	1	1	2	12
Nonreader	7	1	5	3	0	3	2	10	10	41
Subtotal	72	10	30	7	1	19	16	33	64	252

Table 15 (continued)
Grade Placement x Reading Medium x Visual Acuity (continued)

Grade placement Reading medium	Visual acuity I	II	III	IV	V	VI	VII	VIII	IX	Total
Adult trainee										
Visual	269	45	79	36	5	36	19	0	0	489
Braille	38	9	34	13	10	37	45	93	304	583
Auditory	222	12	80	17	5	50	95	173	436	1090
Prereader	8	0	3	1	0	1	13	5	11	42
Nonreader	109	7	33	3	1	22	145	210	597	1127
Subtotal	646	73	229	70	21	146	317	481	1348	3331
Other registrant										
Visual	1170	86	313	93	17	107	105	0	0	1891
Braille	59	4	25	11	11	32	42	159	393	736
Auditory	597	22	141	43	11	76	388	967	1204	3449
Prereader	368	14	76	39	7	119	219	493	404	1739
Nonreader	1353	68	325	90	15	229	1112	1898	2404	7494
Subtotal	3547	194	880	276	61	563	1866	3517	4405	15309
TOTAL	14475	1105	3489	1040	201	1622	3480	6834	8981	41227

Table 16

School/Agency x Reading Medium x Visual Acuity

School/agency	Visual acuity									
Reading medium	I	II	III	IV	V	VI	VII	VIII	IX	Total
Day school programs										
Visual	7867	687	1805	371	59	428	174	0	0	11391
Braille	254	28	125	95	36	167	182	700	1438	3025
Auditory	821	31	208	64	14	117	482	1149	1580	4466
Prereader	2327	79	431	185	20	329	962	1779	1524	7636
Nonreader	1589	56	350	88	14	231	1102	1866	2517	7813
Subtotal	12858	881	2919	803	143	1272	2902	5494	7059	34331
Residential school programs										
Visual	726	113	258	99	12	77	28	0	0	1313
Braille	48	6	61	43	20	90	83	338	478	1167
Auditory	40	5	36	15	3	13	35	101	110	358
Prereader	201	11	40	19	5	22	63	252	178	791
Nonreader	68	1	31	12	4	21	92	203	224	656
Subtotal	1083	136	426	188	44	223	301	894	990	4285
Rehabilitation agencies										
Visual	119	20	33	17	2	16	5	0	0	212
Braille	10	2	14	5	2	22	20	38	110	223
Auditory	72	10	39	14	2	32	17	34	58	278
Prereader	97	1	4	1	0	18	40	92	183	436
Nonreader	19	1	4	0	1	8	10	20	47	110
Subtotal	317	34	94	37	7	96	92	184	398	1259
Multihandicapped facilties										
Visual	52	17	13	6	1	7	6	0	0	102
Braille	0	0	1	1	3	0	2	9	19	35
Auditory	79	1	4	0	1	4	12	27	70	198
Prereader	11	0	3	0	0	3	12	22	17	68
Nonreader	75	36	29	5	2	17	153	204	428	949
Subtotal	217	54	50	12	7	31	185	262	534	1352
TOTAL	14475	1105	3489	1040	201	1622	3480	6834	8981	41227

Table 17

School/Agency x Average Age

School/agency	Average age (months)
Day school programs	163
Residential school programs	168
Rehabilitation agencies	288
Multihandicapped facilities	319

Table 18

Grade Placement x Average Age

Grade placement	Average age (months)
Infant	30
Preschool	53
Kindergarten	77
Grade 1	90
Grade 2	103
Grade 3	116
Grade 4	129
Grade 5	142
Grade 6	153
Grade 7	164
Grade 8	176
Grade 9	189
Grade 10	200
Grade 11	211
Grade 12	228
Academic nongraded	156
Post graduate	466
Vocational training program	218
Adult trainee	443
Other registrant	187

Table 19
OR Students x Age x School/Agency

Age (months)	Day school programs	Residential school programs	Rehabilitation agencies	Multihandicapped facilities	Total
0-24	55	0	0	0	55
25-48	291	9	0	4	304
49-72	874	59	1	12	946
73-96	1489	108	3	13	1613
97-120	1486	151	2	44	1683
121-144	1348	160	2	36	1546
145-168	1242	202	2	51	1497
169-192	1163	199	7	69	1438
193-216	1179	229	6	83	1497
217-240	1092	219	7	83	1401
241-264	955	162	7	99	1223
265-384	931	57	11	189	1188
385-504	427	0	8	104	539
505-624	154	0	7	43	204
625-744	78	0	2	17	97
745-9999	66	1	0	11	78
TOTAL	12830	1556	65	858	15309

Table 20

Reading Medium x Average Age

Reading medium	Average age (months)
Visual	170
Braille	204
Auditory	267
Prereader	57
Nonreader	219

Table 21

Visual Acuity x Average Age

Visual acuity	Average age (months)
I	158
II	177
III	174
IV	166
V	173
VI	173
VII	171
VIII	156
IX	209

Appendix

School and Agency Type--4 categories

Day school programs (programs reporting through State Departments of Education)
Residential schools for the blind
Rehabilitation agencies
Multihandicapped facilities

Grade placement--20 categories

Preschool and school age students:

Infant (IN)	pupils being served by infant programs
Preschool (PS)	pupils being served by preschool programs
Kindergarten (KG)	students enrolled in kindergarten classes
Grades 1 - 12	students in academic grades 1 through 12...indicate the grade in which the student is enrolled
Academic nongraded (AN)	students of school age working to establish grade placement in an academic program (e.g., students who are working to acquire skills necessary for placement in a regular grade)
Vocational (V)	students of school age in vocational training
Postgraduate (PG)	students in postgraduate high programs, studying at less than college level
Other registrant (OR)	school age students who do not fall into any of the above placements (e.g., students in prevocational classes for the multihandicapped, nongraded classes for nonacademic students)

Adult students

Adult trainee (AD)	adults above school age in educational programs of less than college level

Reading medium--5 categories

Visual readers (V)	students primarily using large print or regular print in their studies
Braille readers (B)	students primarily using braille in their studies
Auditory readers (A)	students primarily using a reader or auditory materials in their studies
Prereaders (P)	students working on a readiness level
Nonreaders (N)	students who do not fall into any of the above categories

Visual acuity--9 categories

I....20/200-18/200
II... 17/200-13/200
III.. 12/200-8/200
IV...7/200-3/200
V... 2.5/200-.4/200
VI... counts fingers
VII hand movements, form and object perception
VII light projection and perception
XI totally blind (nil)

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